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Case Report

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A rare indication for appendectomy: acute appendicitis following ingestion of a foreign body

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ABSTRACT

Foreign body ingestion is mostly seen in the pediatric age group but can also occur accidentally or intentionally in adults. However, only about 20% of cases require endoscopic intervention, and less than 1% necessitate surgical intervention. Rarely, ingested foreign bodies can lead to acute appendicitis, requiring appendectomy. In the presented case, a patient who swallowed a screw seven days prior was closely monitored, and when the foreign body did not change position, colonoscopy was performed up to 20 cm proximal to the ileocecal valve without finding the object. As the patient developed tenderness upon abdominal examination, treatment was completed with appendectomy. It should be kept in mind that, although rare, acute appendicitis can develop in patients who have ingested foreign bodies and may require appendectomy.

Keywords: Foreign body , acute appendicitis, foreign body, a rare indication

INTRODUCTION

Ingestion of foreign bodies commonly occurs in the pediatric age group but can also happen accidentally or intentionally in adults. In the United States, over 100,000 cases of foreign body ingestion are encountered annually.[1] About 80% of ingested foreign bodies pass spontaneously through the gastrointestinal tract without causing complications, while endoscopic intervention is required in about 20% of cases. Less than 1% of cases necessitate surgical intervention.[2] Sharp and pointed foreign bodies can lead to perforation, bleeding, ulceration, and erosion in the gastrointestinal tract. In such cases, endoscopic intervention within 24 hours is recommended.[3]

Appendectomy is a commonly performed emergency surgery in general surgical clinics. The pathology underlying appendicitis usually involves obstruction of the appendiceal lumen, primarily due to lymphoid tissue, fecaliths, tumors, or parasitic infections. A very rare cause is the lodgment of an ingested foreign body within the appendiceal lumen. The estimated incidence of this condition is approximately 0.0005%, and about 75% of foreign bodies are radiopaque.[4,5]

Sharp and pointed objects are more likely to cause inflammation if they penetrate the appendix.[6] The aim of this study is to demonstrate that, albeit very rarely, ingestion of foreign bodies can lead to acute appendicitis in patients, thereby emphasizing the importance of patient monitoring.

The aim of this case presentation is to describe a patient who presented with right lower abdominal pain following the ingestion of a screw, which was unsuccessfully managed with endoscopy and subsequently required appendectomy, in light of the literature.

CASE

A 26 year old female patient accidentally ingested a screw while repairing something at home five days ago. When she presented four days later, an outpatient abdominal X-ray showed the foreign body at the level of the small bowel, and due to the absence of abdominal tenderness, outpatient follow-up was recommended (Figure 1).

Upon reevaluation, the patient complained of tenderness in the right lower quadrant, and both abdominal X-ray and computed tomography (CT) revealed the metallic object in the right lower quadrant peri-cecal area (Figure 2, Figure 3).

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Figure 1. 1. day antero-posterior erect view

Figure 3. Foreign body on CT on the 4th day

The patient was admitted for observation. Over the course of three days, the foreign body did not change its position on abdominal X-ray (Figure 4), prompting colonoscopy.

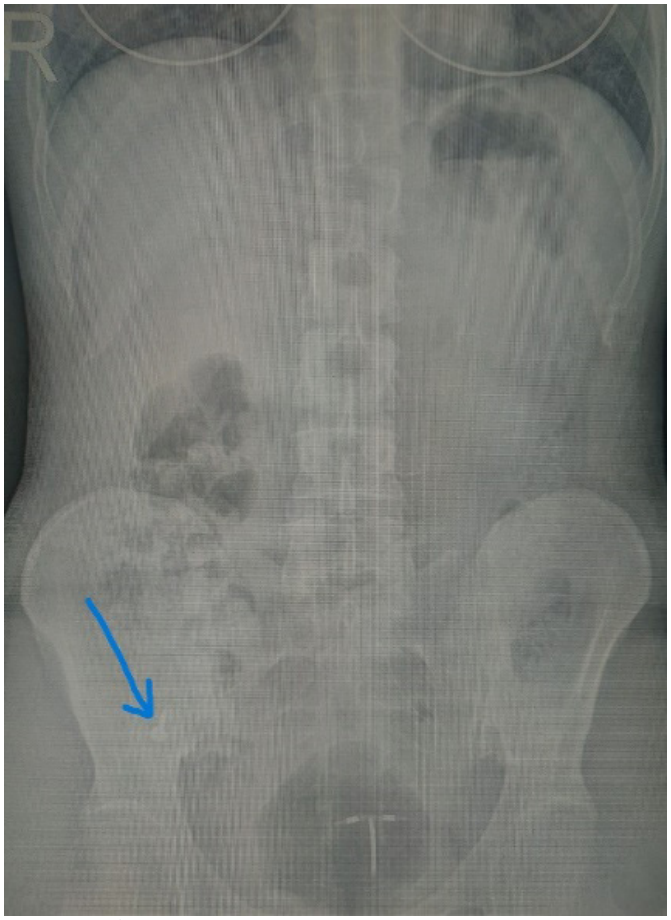

Figure 2. 4. day antero-posterior erect view

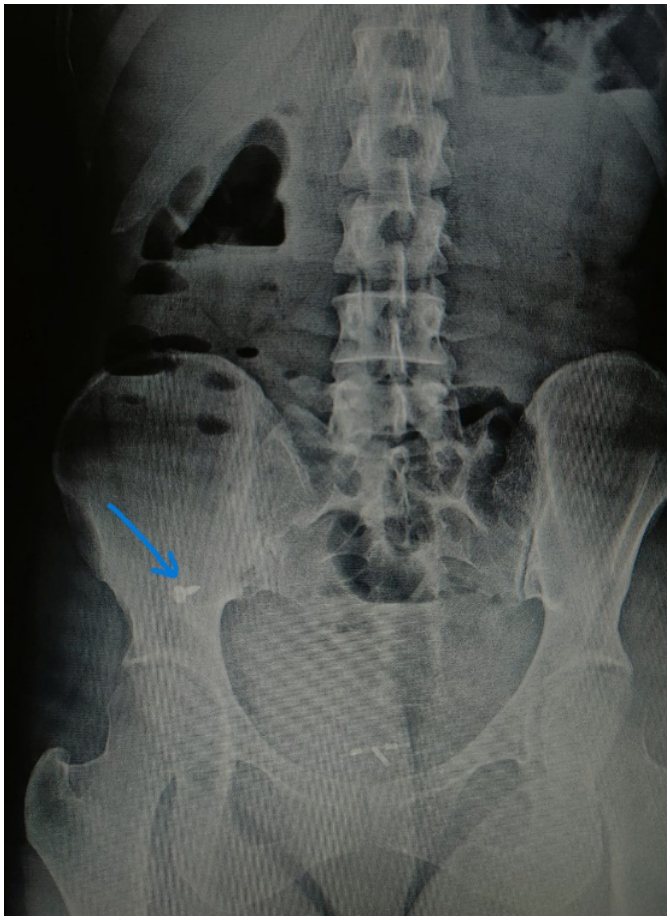

Figure 4. 1. day antero-posterior erect view

Despite advancing up to 20 cm proximal to the ileocecal valve, the object was not found. The colon was partially dirty. A follow-up abdominal X-ray taken one day after the procedure showed the foreign body still in the same location. As the patient exhibited tenderness in the right lower quadrant upon examination, a decision was made to proceed with surgery. Median incision below the umbilicus was made, and exploration of the abdomen revealed no perforation but an inflamed appendix. A hard object was palpated at the base of the appendix. The appendix was incised 1 cm from the base, and the screw was removed. Subsequently, the mesoappendix and base were ligated and excised, and the appendectomy was completed (Figure 5). A drain was placed in the rectovesical area. The patient resumed oral intake on the first postoperative day and was discharged without complications on the third postoperative day.

Figure 5. Foreign body in the intraoperative radix appendix

DISCUSSION

The management of foreign body ingestion varies depending on the type, shape, timing of ingestion, and clinical symptoms of the patient. While sharp and pointed objects carry a higher risk of complications, blunt objects, batteries, objects longer than 6 cm, and objects larger than 2 cm in diameter also pose a significant risk. Batteries can cause chemical reactions leading to erosion and perforation of the gastrointestinal mucosa. Objects longer than 6 cm are likely to get lodged in the duodenum, while those larger than 2 cm in diameter are more likely to remain in the stomach. Most foreign bodies remaining in the upper gastrointestinal tract can be removed endoscopically.[7]

The harmful mechanical effects of ingested foreign bodies typically occur at sudden openings of the gastrointestinal tract or at sites of narrowing such as adhesions and strictures.[8]

When a foreign body is heavier than the intestinal fluid, it may stop advancing upon reaching the cecum and may tend to move downward due to gravity. Once a foreign body enters the appendix orifice and settles, peristalsis may not be sufficient to expel it. The lodgment of a foreign body in the appendix is a rare occurrence with an estimated incidence of 0.0005%, and about 75% of these objects are radiopaque.[4,5] Various objects such as screws, drill bits, piercings, needles, bone fragments, seeds, and toothpicks have been reported to lodge in the appendix.[6,9-15] Sharp and penetrating objects lodged in the appendix can cause perforation, while blunt objects may obstruct the lumen and lead to acute appendicitis with an inflammatory response. Occasionally, a foreign body may remain silent in the appendix without causing an inflammatory response. As a result, patient presentations can vary from days to years after ingestion.[6]

In patients who present with abdominal pain and have a foreign body detected in the appendix on X-ray, the diagnosis of appendicitis should be confirmed by CT scan. Patients with a foreign body detected in the appendix should be closely monitored. If the foreign body does not change position on daily X-rays, endoscopic intervention should be planned. In cases where endoscopy fails, surgical intervention with appendectomy should be considered to prevent potential complications.

CONCLUSION

In our presented case, a patient who ingested a screw seven days prior was closely monitored, and after the foreign body did not change position, colonoscopy was performed up to 20 cm proximal to the ileocecal valve without finding the object. As the patient developed tenderness upon abdominal examination, appendectomy was performed for treatment. It should be kept in mind that acute appendicitis can rarely develop in patients who have ingested foreign bodies and may require appendectomy.

ETHICAL DECLARATIONS

Informed Consent

The patient signed the free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

A conflict of interest has not been declared by the author.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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